

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

In this response, claims 1-5, 8-13, 15-17, 19-20, and 22 have been amended. No claims have been canceled. No claims have been added. Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendments do not add new matter.

Applicants reserve all rights with respect to the applicability of the Doctrine of Equivalents.

Claims 1, 4-5, 11-14, 17, and 20 stand rejected under 35 U.S.C §103(a) as being unpatentable over U.S. Patent No. 7,016,608 to Ball et al. ("Ball") in view of U.S. Publication No. 2004/0264963 to Kani ("Kani").

Amended claim 1 reads as follows:

A wavelength division multiplexing passive optical network (WDM-PON) for performing bi-directional communication, the WDM-PON comprising:
at least three remote distribution nodes between a central office and a first optical network unit, including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, wherein the first remote distribution node includes at least one band splitting filter configured to couple a first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction, and configured to connect to the second remote distribution node coupled to two or more optical network units, wherein each of the first remote distribution node and the second remote distribution node are configured to separate at least one wavelength channel from the first composite optical signal distributed through that remote distribution node.

(Amended claim 1)(emphasis added)

Ball optical network units are preconfigured to accept predetermined subsets of wavelengths. More specifically, Ball discloses a PON architecture having a coarse AWG located in exchange 2, and M remote nodes 5 (Figure 2). As shown in Figure 5 of Ball, all remote nodes 5-7 are connected to exchange 2 parallel to each other. In contrast, amended claim 1 refers to a first remote distribution node, the second remote distribution node, and the third remote distribution node connected to each other sequentially. Ball fails to teach or suggest at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

Kani, in contrast, discloses a wavelength splitter connected between the center unit and optical network units. Kani fails to teach or suggest at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

It is respectfully submitted that Ball does not teach or suggest a combination with Kani, and Kani does not teach or suggest a combination with Ball. It would be impermissible hindsight, based on applicants' own disclosure, to combine Kani and Ball.

Furthermore, even if Ball and Kani were combined, such a combination would still lack at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

Therefore, applicants respectfully submit that claim 1, as amended, is not obvious under 35 U.S.C. §103(a) over Ball in view of Kani.

Given that claims 4-5 and 11-14 depend from amended claim 1, and add additional limitations, applicants respectfully submit that claims 4-5 and 11-14 are not obvious under 35 U.S.C. §103(a) over Ball in view of Kani.

Amended claim 17 reads as follows:

separating a first composite optical signal that includes all of the wavelength channels in a first wavelength band in a transmission path between a central office and a most distant optical network unit into at least three smaller groups consisting of subsets of the wavelength channels; and

generating the at least three smaller groups consisting of subsets of the wavelength channels by sequentially separating the first composite optical signal along the transmission path at least three times by a first remote distribution node connected sequentially to a second remote distribution node which is connected sequentially to a third remote distribution node via at least one band splitting filter that is configured to couple the first composite optical signal and a second composite optical signal to a first optical cable connected to the central office, wherein the first composite signal travels on the first optical cable in a first direction, and the second composite optical signal travels on the first optical cable in a second direction opposite the first direction.

(Amended claim 17)(emphasis added)

As set forth above, even if Ball and Kani were combined, such a combination would still lack separating a first composite optical signal that includes all of the wavelength channels in a

first wavelength band in a transmission path between a central office and a most distant optical network unit into at least three smaller groups consisting of subsets of the wavelength channels; and generating the at least three smaller groups consisting of subsets of the wavelength channels by sequentially separating the first composite optical signal along the transmission path at least three times by a first remote distribution node connected sequentially to a second remote distribution node which is connected sequentially to a third remote distribution node, as recited in amended claim 17.

Therefore, applicants respectfully submit that claim 1, as amended, is not obvious under 35 U.S.C. §103(a) over Ball in view of Kani.

Given that amended independent claim 20 contains some limitations that are similar to those limitations set forth above, applicants respectfully submit that claim 20, as amended, are not obvious under 35 U.S.C. §103(a) over Ball in view of Kani.

Claims 2-3 and 15-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ball in view of Kani and further in view of U.S. Publication No. 2001/0038479 to Liu et al. (“J.Liu”).

As set forth above, even if Kani and Ball were combined, such a combination would still lack at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

Liu, in contrast, discloses a programmable optical add/drop multiplexer. Liu fails to teach or suggest at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

It is respectfully submitted none of the cited references teaches or suggests a combination with each other. It would be impermissible hindsight, based on applicants' own disclosure, to combine Liu, Kani and Ball.

Furthermore, even if Liu, Kani and Ball were combined, such a combination would still lack at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

Given that claims 2-3 and 15-16 depend from amended claim 1, and add additional limitations, applicants respectfully submit that claims 2-3 and 15-16 are not obvious under 35 U.S.C. §103(a) over Ball in view of Kani and further in view of Liu.

Claims 6-10, 18-19 and 21-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ball in view of Kani and further in view of PCT Publication No. WO 03/055111 to Tervonen ("Tervonen").

As set forth above, even if Kani and Ball were combined, such a combination would still lack at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

Tervonen, in contrast, discloses a hub connected to an optical router connected to a plurality of network units (Figure 1). More specifically, Tervonen discloses the interleaver and the first multiplexer/demultiplexer and the second multiplexer/demultiplexer at a curb location (Figure 5, p. 11, last paragraph). Tervonen fails to teach or suggest at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

It is respectfully submitted none of the cited references teaches or suggests a combination with each other. It would be impermissible hindsight, based on applicants' own disclosure, to combine Tervonen, Kani and Ball.

Furthermore, even if Tervonen, Kani and Ball were combined, such a combination would still lack at least three remote distribution nodes in between a central office and a first optical network unit including a first remote distribution node, a second remote distribution node, and a

third remote distribution node, each of the first remote distribution node and the second remote distribution node is located in a physically separate location, wherein the first remote distribution node, the second remote distribution node, and the third remote distribution node are connected to each other sequentially, as recited in amended claim 1.

Given that claims 6-10 depend from amended claim 1, and add additional limitations, applicants respectfully submit that claims 6-10 are not obvious under 35 U.S.C. §103(a) over Ball in view of Kani and further in view of Tervonen.

As set forth above, even if Tervonen, Ball and Kani were combined, such a combination would still lack separating a first composite optical signal that includes all of the wavelength channels in a first wavelength band in a transmission path between a central office and a most distant optical network unit into at least three smaller groups consisting of subsets of the wavelength channels; and generating the at least three smaller groups consisting of subsets of the wavelength channels by sequentially separating the first composite optical signal along the transmission path at least three times by a first remote distribution node connected sequentially to a second remote distribution node which is connected sequentially to a third remote distribution node, as recited in amended claim 17.

Given that claims 18-19 depend from amended claim 17, and add additional limitations, applicants respectfully submit that claims 18-19 are not obvious under 35 U.S.C. §103(a) over Ball in view of Kani and further in view of Tervonen.

Given that claims 21-22 contain some limitations that are similar to those set forth above, applicants respectfully submit that claims 21-22 are not obvious under 35 U.S.C. §103(a) over Ball in view of Kani and further in view of Tervonen.

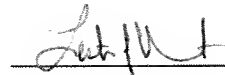
It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If the Examiner believes a telephone conference would expedite the prosecution of the present application, the Examiner is invited to call the undersigned at (408) 720-8300.

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

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